

7 January, 1999

Febrile Respiratory Illness Testing Update
Emerging Illness Division
Naval Health Research Center
June – November, 1998

Background – Naval Health Research Center (NHRC), San Diego, has been conducting surveillance of febrile respiratory illness at military recruit camps since June 1998. Eight camps, representing all 3 service branches, report FRI rates to NHRC each week. Viral throat culture specimens are taken from a systematic sample of ill recruits, and the specimens are shipped to NHRC to undergo testing for viral pathogens including influenza A and B, adenovirus, respiratory syncytial virus (RSV), and parainfluenza.

Current progress – Testing has been completed for 764 specimens taken between 8 June and 2 December 1998. Summary results are shown in Table 1.

Influenza – To date, 44 (5.7%) of the specimens have been positive for influenza, with type A accounting for 84% of the positives and type B the remaining 16%. The earliest type A and B isolates were found on 22 July (Ft. Jackson) and 11 August (Ft. Leonard Wood), respectively, while the most recent A and B isolates are from 9 November (Great Lakes) and 4 November (Great Lakes), respectively. Among the positives for which vaccination status was known, 29/39 (74%) had received influenza vaccine. Among the vaccinated positives for which vaccination date was known, 23/27 (85%) had been vaccinated more than 2 weeks prior to their illness, suggesting that they may have been infected with a nonvaccine strain of influenza (see Table 2). Most of the positives among vaccinated occurred at Ft. Jackson, where all 21 positives came from vaccinated personnel. Subtyping of the isolates is in progress.

Adenovirus – Adenovirus has clearly been the leading cause of FRI among recruits, as 68.7% of all specimens tested to date have been positive. The proportion of disease caused by adenovirus varies greatly by location, ranging from 12.5% (Lackland AFB) to 88.1% (NTC Great Lakes). Because adenovirus vaccine is only given seasonally to conserve existing supplies, more than 90% of the specimens tested to date have come from unvaccinated personnel. Serotyping of the isolates has recently begun.

Other pathogens – RSV, parainfluenza 1, parainfluenza 2, and parainfluenza 3 were isolated in 2.6%, 1.3%, 0.8%, and 1.4% of the specimens, respectively.

Negative specimens – Only 28.5% of the specimens were completely negative for virus. The proportion of negatives varied greatly by location, with NTC Great Lakes, MCRD San Diego, and Ft. Benning having a relatively low number of specimens testing negative.

Temporal trends – The adenovirus and influenza infection rates over time are shown in Figures 1 and 2. The rates are calculated by multiplying the febrile respiratory illness rate by the proportion (%) of specimens testing positive for adenovirus and influenza. Adenovirus infection rates appeared to rise in late summer and early fall, remaining relatively high through November. Influenza infection rates rose slightly in September and declined subsequently. Comparing the graphs, it is again evident that adenovirus accounted for the majority of febrile respiratory illness morbidity among military trainees.

Table 1. Summary of viral testing results for specimens taken between 8 June and 2 December 1998. Specimens were obtained from military trainees who sought medical care and had an oral temperature of $\geq 100.5^{\circ}\text{F}$ and cough or sore throat.

	Ft. Leonard						
	Great Lakes	MCRD San Diego	Wood	Ft. Jackson	Lackland AFB	Ft. Benning	Total
Number tested	177	119	80	349	24	15	764
% Influenza	7.4	5.8	3.8	6.0	0	0	5.7
% Type A	5.1	5.0	2.5	5.7	0	0	4.8
% Type B	2.3	0.8	1.3	0.3	0	0	0.9
% Adenovirus	88.1	83.2	20.0	67.9	12.5	93.3	68.7
% RSV	1.7	5.0	3.8	2.0	4.2	0	2.6
% Parainfluenza 1	0.6	0.8	1.3	1.7	0	6.7	1.3
% Parainfluenza 2	0.6	0	0	1.4	0	0	0.8
% Parainfluenza 3	0.6	2.5	2.5	1.4	0	0	1.4
% Negative	10.2	12.6	73.8	29.8	87.5	6.7	28.5

Note: Column percentages total more than 100 percent because some specimens were positive for more than one virus.

Table 2. Characteristics of influenza-positive trainees who received vaccine and had a known vaccination date (n=27). Cases are shown in chronological order.

Site	Flu Type	Specimen Date	Vaccine Date	More than 2 weeks?*	Sex	High Temperature	Days with Symptoms
MCRD S.D.	A	08/27/98	07/22/98	Y	M	102.6	2
Ft. Jackson	A	08/31/98	07/16/98	Y	M	101.8	3
Ft. Jackson	A	08/31/98	07/14/98	Y	M	103.3	3
Ft. Jackson	A	09/01/98	06/27/98	Y	F	102.0	7
Ft. Jackson	A	09/01/98	08/07/98	Y	F	100.5	3
Ft. Jackson	A	09/01/98	07/21/98	Y	F	102.1	3
Ft. Jackson	A	09/02/98	07/13/98	Y	M	104.1	3
Ft. Jackson	A	09/08/98	08/03/98	Y	F	100.7	6
Ft. Jackson	A	09/08/98	09/02/98	N	M	104.4	3
Ft. Jackson	A	09/08/98	07/20/98	Y	M	102.2	3
Ft. Jackson	A	09/08/98	07/24/98	Y	M	102.5	3
Ft. Jackson	A	09/08/98	07/17/98	Y	M	102.5	3
Ft. Jackson	A	09/18/98	08/06/98	Y	M	101.3	2
Ft. Jackson	A	09/21/98	07/03/98	Y	M	103.8	4
Ft. Jackson	A	09/21/98	08/12/98	Y	M	103.6	4
Ft. Jackson	B	09/28/98	08/24/98	Y	M	101.7	16
Ft. Jackson	A	09/28/98	08/21/98	Y	M	102.5	3
Ft. Jackson	A	09/28/98	08/03/98	Y	M	102.4	4
Ft. Jackson	A	10/05/98	09/10/98	Y	M	101.0	5
Ft. Jackson	A	10/19/98	08/27/98	Y	F	102.9	2
Ft. Jackson	A	10/20/98	09/21/98	Y	F	101.9	4
Great Lakes	A	10/27/98	10/24/98	N	M	101.0	0
MCRD S.D.	A	10/28/98	10/06/98	Y	M	103.2	10
Ft. Jackson	A	11/02/98	09/22/98	Y	M	104.0	3
Great Lakes	A	11/03/98	11/01/98	N	M	100.6	0
MCRD S.D.	B	11/04/98	09/22/98	Y	M	102.5	4
Great Lakes	A	11/09/98	10/30/98	N	M	100.7	0

* More than 2 weeks elapsed between influenza vaccination and illness.

Note: Ft. Jackson switched from the 1997-8 to the 1998-9 influenza vaccine on 5 October 1998.

Figure 1. Adenovirus infection rates at military training camps.

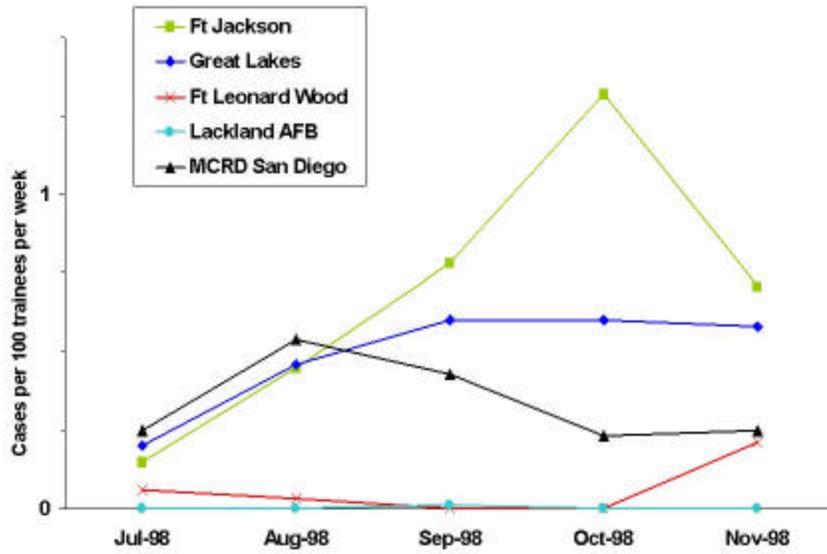


Figure 2. Influenza infection rates at military training camps.

