

### 1143. GenMark ESensor Respiratory Viral Panel in an Inpatient Pediatric Population

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**Background.** Respiratory viruses cause significant morbidity and hospitalization among children. Recent advances in diagnostics have improved the ability to identify viral pathogens, avoiding prolonged hospitalization and unnecessary antibiotic use. A molecular diagnostic test was recently FDA approved (eSensor XT-8 with GenMark Dx).

**Methods.** The standard of care to identify respiratory viral pathogens at our large pediatric referral facility utilizes Direct Fluorescent Antibody (DFA), with viral culture on DFA-negative specimens. GenMark probe testing was added to standard-of-care testing for a total of 300 samples from inpatients during the 2012-13 respiratory season. 200 samples negative by DFA/culture and 100 positive by either DFA or viral culture were used. Clinical data were collected. Length of stay was only calculated for those  $\leq 21$  days (n= 268), to exclude hospitalizations unlikely related to viral illness.

**Results.** The eSensor RVP identified viral nucleic acids in 74.1% of samples, compared to 22.5% from standard of care, thus tripling the diagnostic yield. Results by virus are listed in the table. There was no association with longer hospitalization or higher acuity among subjects with multiple viruses detected, or with influenza or RSV alone. Longer length of stay and higher acuity was only associated with Coronavirus. OC43 was the most common coronavirus identified (71%) and these associations remained significant. Younger subjects were more likely to have RSV, HRV, and > 1 virus.

Subject Characteristics by Virus

Virus	N	Age (years) mean	Length of Stay (days) mean	p-value	Higher Acuity	p-value
<b>Influenza A</b>	6	3.8	5.8	0.7	1.4%	0.4
<b>Influenza B</b>	11	3.1	3.8	0.3	4.2%	0.8
<b>RSV</b>	26	1.7	5.9	0.3	8.3%	0.3
<b>PIV</b>	10	3.3	3.9	0.3	2.8%	0.4
<b>hMPV</b>	25	2.2	4.6	0.5	11.1%	0.9
<b>HRV</b>	42	1.9	4.3	0.2	18.1%	0.9
<b>ADV</b>	7	4.1	2.7	0.1	2.8%	0.9
<b>Corona</b>	34	3.4	7.3	<b>0.004</b>	25.0%	<b>0.004</b>
<b>OC43</b>	24	3.5	7.4	<b>0.011</b>	18.1%	<b>0.012</b>
<b>&gt; 1 virus detected</b>	72	1.9	5.2	0.9	26.4%	0.4

**Conclusion.** The improved sensitivity of the eSensor RVP identifies many more infections than current standard of care. Coronavirus, especially OC43, could potentially represent a more virulent pathogen, associated with both prolonged hospitalization and higher acuity. Detecting > 1 virus in a hospitalized child is not predictive of higher acuity illness or longer hospitalization.

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