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Background. Respiratory Syncytial Virus (RSV) is the most common cause of bronchiolitis and pneumonia in infants and children. Diagnosis of RSV can be made by molecular detection of the virus in a swab of respiratory secretions. Nasopharyngeal (NP) swabs are the most frequent swab type validated for the detection of RSV, and are often considered the "gold standard" for quantification studies. However, NP sampling is invasive and uncomfortable. We sought to determine whether a less invasive method, a mid-turbinate (MT) swab, was comparable to NP sampling for quantification of RSV in infants.

Methods. We prospectively enrolled children < 24 months with a confirmed diagnosis of RSV and hospitalized at Primary Children's Hospital (Salt Lake City, UT) during the 2015 – 2017 RSV seasons. Both an NP and MT swab were collected from each infant from different nostrils; subjects were randomized (1:1:1:1) as to the order of collection. After collection, parents were asked which collection method (NP vs. MT) they preferred. Viral loads were measured by real-time RT-qPCR. Correlation between the viral loads from the MT and NP swabs was examined. A mixed effect model was used to evaluate the mean (SD) viral loads.

Results. 83 infants were enrolled and had swabs collected. Median age was 4 months [range 0–23]. 20 infants had swabs collected on multiple consecutive days. Median (Q1,Q3) duration of symptoms prior to enrollment was 5 days (4,7) Median (Q1,Q3) hospital stay length was 2 days (2,4). 1 infant was RSV negative according to the RT-qPCR assay. The mean (SD) viral loads were similar: 7.34 (1.26) and 7.09 (1.25) $\log_{10}$ copies/mL for 77 paired NP and MT swabs, respectively; see Figure 1 for median, range and quartiles. The correlation coefficient between the paired viral loads was high (0.82); see Figure 2 for Bland-Altman plot. Most parents (49/67 [73%]) who watched the swabbing preferred the MT to the NP swab.

Conclusion. MT swabs perform as well as NP swabs for the quantification of RSV in infants. The difference in mean viral load is small compared with the standard deviation. The less invasive MT swabs are preferred by parents for sampling. MT swabs have the potential to replace the NP swab as the "gold standard" for quantitative respiratory viral sampling.

Figure 1: Boxplot of Viral Load Obtained from the NP and MT Swabs

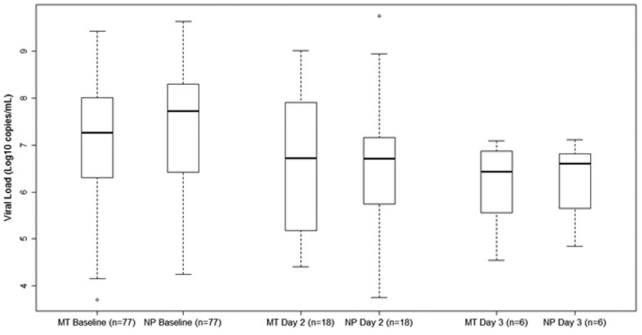
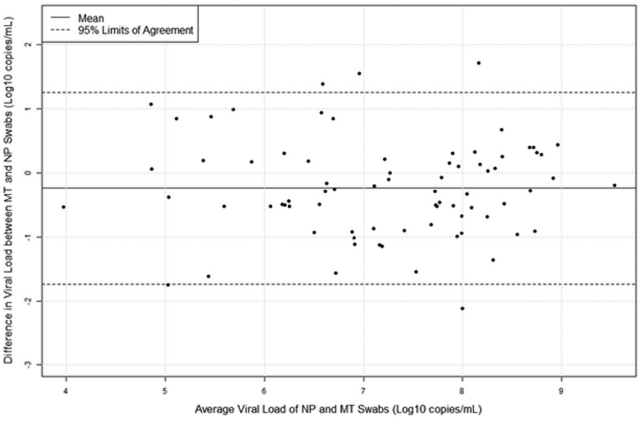


Figure 2: Bland-Altman Plot of Viral Load Obtained from the NP and MT Swabs at Enrollment



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1162. Measles Oral Swab as Field-Based Screening Test in Children

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Background. Indonesia suffered from measles outbreak for many times, especially in the last five years. Most patients were children. WHO used measles specific Ig M from the blood as a gold standard but this test is invasive. Anti measles Ig M oral swab has been used as an alternative however there has not been any study about this method in Indonesia. The objective of this study was to validate anti measles Ig M oral swab for the diagnosis of measles in children.

Methods. This study was performed in Dr. Soetomo Hospital in Surabaya for three months period. Children with fever and rash suspected having measles according to WHO criteria were used as samples. Inclusion criteria included age 6 month until 15 year-old, with maculopapular rash, fever for at least three days, and at least one of cough, coryza, and conjunctivitis. Immunocompromized children and those with history of fever and rash or measles vaccination in the last 8–12 weeks were excluded. A blood specimen for serum anti measles Ig M and oral swab using transudate in gingivo-cervicular sulcus were taken at the same time. Method for oral swab specimen was microimmune(EIA) captured antibody assay for measles IgM. Measles specific IgM antibodies from blood specimen were measured by Enzygnost anti measles IgM. Mc Nemar test and kappa were used to analyze the results with $P < 0.05$.

Results. There were fifty-six children in the study. The age range was 6 – 72 months. Boys outnumbered girls with ratio 1.6:1. Most patients came on day third-sixth of illness. As much as 75.7% of the children were not immunized. Antimeasles Ig M were truly positive by both methods in fifty sampes. Detection of Ig M antibodies were similar either by using serum or oral swab (Mc Nemar, $P = 1{,}00$). The best ROC curve to detect anti measles IgM by oral swab was shown at the value of 0.2 (sensitivity 98%, specificity 60%, Kappa 0.638 with $P < 0.0001$, PPV 96%, and NPV 75%) For the value of 0.5 we had sensitivity 90%, specificity 80%, PPV 98%, NPV 44%, and Kappa 0.516 with $P < 0.001$.

Conclusion. Anti measles IgM oral swab is highly sensitive and can be used as a field-based alternative screening method to diagnose measles infection.

Disclosures. **All authors:** No reported disclosures.

1163. Sensitivity and Specificity of the Quidel Sofia Influenza A+B FIA Rapid Influenza Detection Test in Long-Term Care Facilities

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Background. Influenza is a significant pathogen for long-term care facility (LTCF) residents. As part of a randomized controlled trial to assess early detection of influenza in LTCFs, we deployed rapid influenza detection tests (RIDTs) at intervention LTCFs. Our primary objectives for this interim analysis were to evaluate the sensitivity and specificity of the Quidel Sofia® Influenza A+B Fluorescent Immunoassay RIDT in a high-risk, nontraditional population, and to describe the virology of acute respiratory infections (ARI) in LTCF residents.

Methods. Personnel at LCTFs identified cases of ARI, collected nasal specimens, and ran RIDTs from 10/21/2016 to 4/28/2017. The residual nasal swab and leftover lysis buffer were placed into a viral transport medium tube and sent to the Wisconsin State Laboratory of Hygiene for confirmatory influenza RT-PCR testing. In addition, all specimens were tested for other viruses using the Luminex NxTAG® Respiratory Pathogen Panel. Sensitivity and specificity of the Sofia RIDT were calculated using RT-PCR results as the reference standard.

Results. Specimens were collected from 228 residents (mean age = 71.3 ± 22.4 years). The mean time from symptom onset to specimen collection was 1.4 ± 1.6 days (range: 0-7 days). Respiratory viruses were identified in 134/228 cases (58.8%); influenza viruses (A: 7.5% and B: 14.5%) were the most commonly detected virus by PCR, followed by rhinovirus/enterovirus (13.2%), RSV (11.0%) and coronaviruses (10.1%). The sensitivities of Sofia RIDT for influenza A and influenza B were 77.8% (95% CI: 52.4–93.6%) and 80.0% (95% CI: 61.4–92.3%), respectively, with specificities of 98.4% (95.3–99.7%) and 97.1% (93.4–99.1%), respectively. Overall performance assessment for influenza A or B yielded a sensitivity of 79.2% (65.0–89.5%) and specificity of 96.1% (91.7–98.6%). The estimated likelihood of discovering one of the first two influenza cases at a LTCF using this RIDT is estimated to be ≥95.7%.

Conclusion. Although a wide constellation of respiratory viruses cause ARIs within LTCF populations, influenza is very common. Early ARI recognition in residents, with testing shortly after symptom onset, likely contributed to high performance of the Sofia RIDT. Use of RIDTs allows early identification of influenza with high sensitivity and specificity in elderly LTCF residents.

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