# Nasal versus Nasopharyngeal Sample Collection for Diagnostic Nucleic Acid Amplification Testing for Influenza A, Influenza B, and Respiratory Syncytial Viruses

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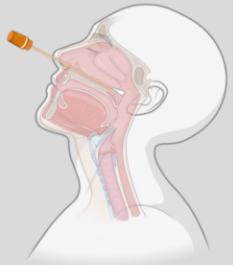
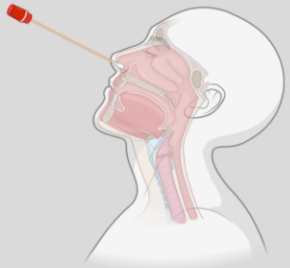
Nucleic acid amplification testing (NAAT) for influenza A virus (IAV), influenza B virus (IBV), and respiratory syncytial virus (RSV) is a standard component of diagnosis of infections with these pathogens. At our institution, current standard of practice is to collect nasopharyngeal (NP) samples for such NAAT. In an effort to provide clinicians and patients a simpler, more comfortable sample collection option, **we evaluated the use of nasal samples for NAAT, compared to NP samples**.



n = 58 patients



| Virus-positive by **NP swab** | | Virus-positive by **nasal swab** |
|---|---|---|
| 16 | IAV | 16 |
| 14 | IBV | 12 |
| 8 | RSV | 7 |

False-negatives
n = 3 (5%)

Positive percent agreement
92%
(35/38)

Negative percent agreement
100%
(20/20)

Among samples testing positive for virus by both NP and nasal sampling methods, **the average cycle threshold (Ct) value was higher for nasal samples than for NP samples**:

- IAV + 5.1 cycles (n = 16, SEM = 0.83)
- IBV + 3.3 cycles (n = 12, SEM = 1.87)
- RSV + 1.9 cycles (n = 7, SEM = 1.57)

## Conclusions

- **Recovery of viral RNA from nasal samples was lower than that from nasopharyngeal samples**
- Decreased recovery of viral RNA by nasal sampling may translate to decreased diagnostic accuracy

## Methods

- Both nasal and NP specimens were collected from each of 58 patients seen in our emergency department (January – March 2020).
- NP samples were collected using minitip FLOQswabs; nasal samples were collected using regular or minitip FLOQswabs.
- Nasal and NP samples were processed using the same protocol and tested for influenza viruses and RSV using the Cepheid GeneXpert (Xpress Flu/RSV) platform.

## References

- Cepheid Xpert Xpress Flu/RSV Datasheet, www.cepheid.com.
- Richard, M. et al., Influenza A viruses are transmitted via the air from the nasal respiratory epithelium of ferrets, *Nat. Comm.* 2020.