HIGH CONCORDANCE BETWEEN SELF-COLLECTED NASAL SWABS AND SALIVA SAMPLES FOR DETECTION OF SARS-COV-2

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BACKGROUND

- Shortages of swabs and transport medium for sample collection have made identification of SARS-CoV-2 infections challenging.
- We examined the agreement in SARS-CoV-2 detection between two types of self-collected samples: nasal swabs (NS) and saliva (SA).

METHODS

- Paired daily self-collected NS and SA samples were collected since May 2020 in an ongoing case-ascertained study of SARS-CoV-2 household transmission in Nashville, TN.
- After informed consent was obtained, index case-patients and household members were remotely trained in the self-collection of daily nasal swabs (from both nares and preserved in transport medium) and saliva samples (participants were asked to spit in a cup approximately 6 times during a minute).
- Self-collected NS and SA samples were tested using RT-PCR at a research laboratory.
- We computed the agreement in detections between sample types using the McNemar test.
- Among positive paired samples, we compared median RT-PCR cycle threshold (CT) values between sample types for 2 targets (SARS-CoV-2-N1 and N2) using a Wilcoxon signed rank test.
- Bland-Altman plots were used to visually inspect agreement between NS and SA CT values.

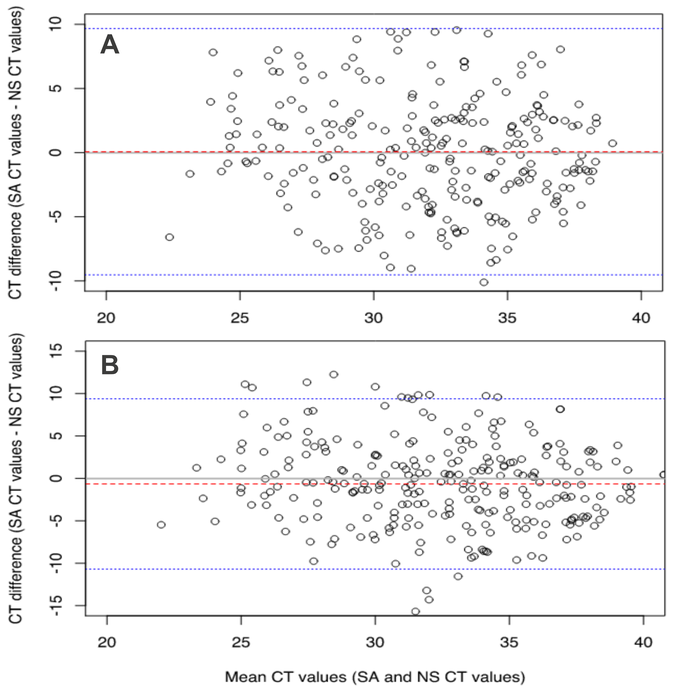
RESULTS

- Among 892 pairs of self-collected samples from 77 unique participants (31 index case-patients and 46 household contact members), the overall agreement between NS and SA was 74.6%
- Among positive paired samples, the median SARS-CoV-2-N1 CT value for NS samples was 31.8 (interquartile range: 27.9–34.6) and for SA samples was 31.7 (28.7–34.8, p=0.3); the median CT value for SARS-CoV-2-N2 was 32.5 (28.7–35.6) and 31.5 (28.9–35.1), respectively (p=0.3).

Table. Concordance between self-collected nasal swabs and saliva samples

N=892 paired SA & NS samples	Positive NS (N [%])	Negative NS (N [%])
Positive SA	236 (86.8%)	191 (30.8%)
Negative SA	36 (13.2%)	429 (69.2%)

Figure. Bland-Altman plots of (**A**) SARS-CoV-2-N1 and (**B**) SARS-CoV-2-N2 CT values for SA and NS samples



LIMITATIONS

- These initial concordance assessments did not take into account variations in volume of specimens collected
- Unsupervised self-collection of specimens may allow misclassification of individual's specimens, which may have contributed to lower agreement.

CONCLUSION

- Self-collection of saliva samples provides a simple, non-invasive, and practical alternative strategy for identification of SARS-CoV-2 infections.

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