

SELF- OR PARENT-COLLECTED NASAL MID-TURBINATE FLOCKED SWABS VERSUS NASOPHARYNGEAL SWABS FOR INFLUENZA DIAGNOSIS IN A COMMUNITY-BASED STUDY

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ABSTRACT

Background: We previously tested the new Copan mid-turbinate nasal flocked swab (NS) in volunteers, and demonstrated equivalence to flocked nasopharyngeal swabs (NPS) for sampling respiratory tract epithelial cells. The objective of this study was to compare self-collected NS with nurse-collected NPS in a community-based study of influenza transmission.

Methods: In an ongoing cohort study of Hutterite communities in rural Alberta, subjects with influenza-like illness have a flocked NPS taken by a study nurse, and self-collect (or parent-collect) a nasal mid-turbinate flocked swab (Copan, Brescia, Italy). When influenza was confirmed in the community, NS were collected daily for up to three weeks. Influenza was detected from swabs by PCR targeting the matrix gene (influenza A) or NS1 gene (influenza B) at the ProvLab in Calgary, Alberta.

Results: A total of 400 NPS and 2008 nasal swabs were obtained from 270 individuals in 4 affected communities during winter 2007/2008. 60 cases of influenza A or B were identified: 43 in children, and 17 in adults. One NPS, and up to 23 nasal swabs (average=13), were taken per person. 48 of 400 NPS were positive (12.0%), as were 169 of 2008 NS (8.4%). Of the 60 confirmed influenza cases, 48 (80%) were diagnosed by NPS, and 52 (86.7%) by nasal swab. In direct, same-day comparisons between NPS and initial NS, NPS detected 47, and NS detected 40. However, NS detected an additional 11 which did not have an NPS done. NS sampling for up to 21 days was feasible and well tolerated.

Conclusions: Serial nasal mid-turbinate swabs have equal sensitivity to NPS, and can be feasibly collected by self- or parental-collection for up to 21 days. This strategy may be of particular value for studies of vaccine efficacy, or of influenza transmission.

OBJECTIVES

- To compare self-collected nasal swab (NS) with nurse-collected nasopharyngeal swab (NPS) in a community-based study of influenza transmission

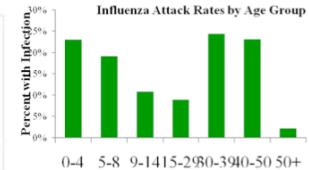
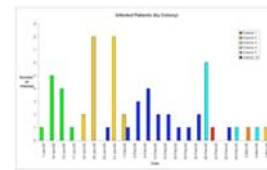
METHODS

- Cohort study of Hutterite communities in rural Alberta
- For subjects with Influenza-like illness, nurse collects flocked NPS
- Subject (or parent) collects Copan nasal mid-turbinate flocked swab
- During confirmed influenza outbreak, NS collected daily (max. 21 d)
- Influenza was detected from swabs by PCR targeting the matrix gene (influenza A) or NS1 gene (influenza B) at the ProvLab in Calgary, Alberta.

RESULT

- 400 NPS and 2008 NS from 270 individuals in 4 communities in 2007/08.
- 60 cases of influenza A or B were identified:
- 43 in children, and 17 in adults.
- One NPS, up to 23 nasal swabs (average=13), taken per person.

- 48 of 400 NPS were positive (12.0%),
- 169 of 2008 NS (8.4%).
- 60 subjects with influenza A or B:
 - 48 (80%) were diagnosed by NPS,
 - 52 (86.7%) by NS
- Parallel, same-day NPS and initial NS,
 - NPS detected 47, and NS detected 40
- NS detected in additional 12 on follow-up



	NPS+	NPS-	No NPS	TOTAL
NS+	40	1	11	52
NS-	7	352	1597	1956
TOTAL	47	353	1608	2008

• Table. Influenza positive by sample from 400 NPS and 2008 NS samples.

CONCLUSIONS

- Serial nasal mid-turbinate swabs have equal sensitivity to NPS
- Feasibly self- or parental-collected for up to 21 days.
- This strategy may be of particular value for studies of vaccine efficacy, or of influenza transmission.
- In future, may facilitate home- or point-of-care testing

