COMPARISON OF PERNASAL NYLON FLOCKED SWABS WITH UNIVERSAL TRANSPORT MEDIUM (UTM) AND RAYON SWABS FOR INFLUENZA DIAGNOSIS IN PEDIATRICS

S. ESPOSITO, C.G. MOLTENI, C. DALENO, A. VALZANO, L. CESATI, L. GUALTIERI, C. TAGLIABUE, S. BOSIS, N. PRINCIPI
Department of Maternal and Pediatric Sciences, University of Milan, Fondazione IRCCS "Ospedale Maggiore Policlinico, Mangiagalli e Regina Elena", Milan, Italy

INTRODUCTION

Collection and preservation of nasopharyngeal secretions are essential steps for a rapid identification of respiratory viruses, which in turn permits to optimize clinical care and limit viral spread. Nasopharyngeal swabs were shown to be as efficient as traditional collection techniques (i.e. nasopharyngeal aspirate), easier to use and better tolerated by patients. Several swabs are marketed but few data are available on the comparison of different swabs. This study compared pernasal nylon flocked swabs with 1 ml UTM tube (code 360C, Mini UTM kit, Copan Italia, Brescia Italy), and rayon budded swabs with sponge transport medium (Virocult MW950, Medical Wire, UK) in influenza diagnosis.

METHODS

Between 1 January 2008 and 31 March 2008, respiratory specimens were collected from 314 children aged <5 yrs attending the Emergency Room with symptoms of influenza-like illness. Nasal samples were collected by trained pediatricians from one nostril with a rayon swab (stored in its transport tube), and from the other nostril with a nylon pernasal flocked swab (stored in a tube containing 1 mL UTM), in a randomised sequence for each patient. The tubes containing pernasal flocked swabs + 1mL UTM were simply vortexed, while rayon swabs were put in 1 mL Lysis buffer (Biomerieux, France), vortexed and incubated for 10 minutes at RT. RNA was extracted from samples resuspended in UTM/Lysis buffer. Real-time polymerase chain reaction for the detection of influenza A and B viruses was performed. Pediatricians and laboratory staff had to define satisfaction regarding the use of swabs, rating it from 1 (the lowest level) to 5.

RESULTS

Table 1. Detection of influenza viruses.

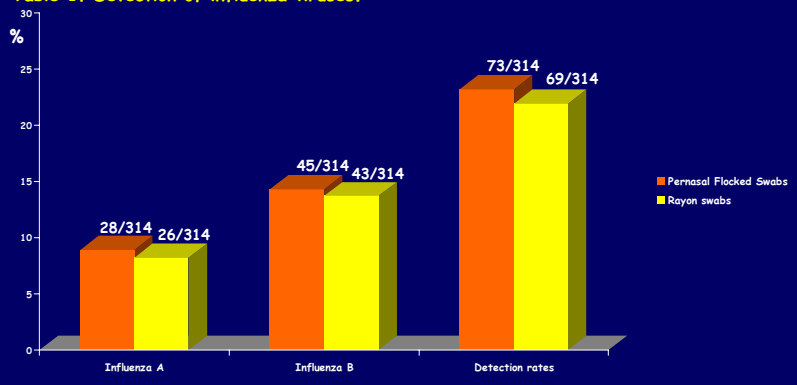


Table 2. Mean viral recovery (Ct=cycle threshold). Error bars represent the standard deviation.

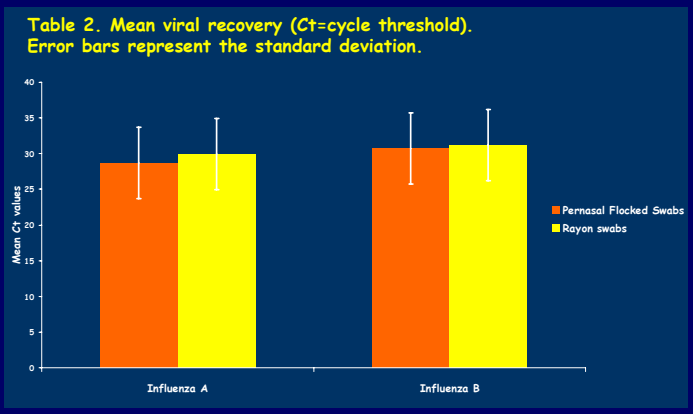
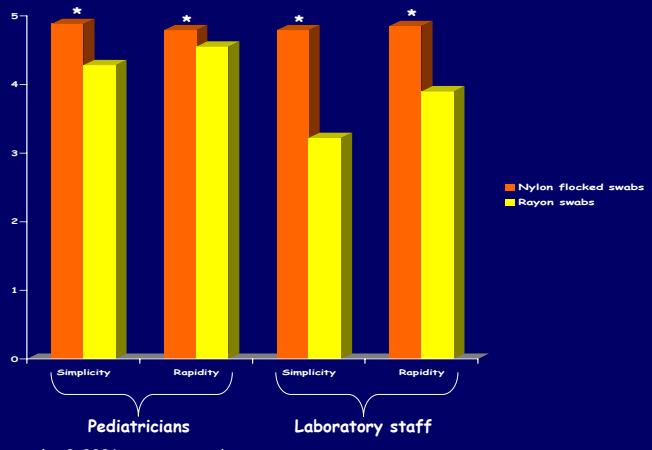


Table 3. Study staff satisfaction. Satisfaction was based on a five-point scale (from 1 "very dissatisfied" to 5 "very satisfied"). The chart shows the mean values.



*$p<0.0001$ *vs* rayon swabs

CONCLUSIONS

-We found no significant difference between pernasal nylon flocked swabs with UTM and rayon swabs, in terms of viral detection rates and amount of recovered virus (mean CT values), although slightly better results were obtained using pernasal nylon flocked swabs with UTM.

-Pediatricians and laboratory staff satisfaction was significantly ($p<0.0001$) higher with pernasal nylon flocked swabs with UTM, which allow an easier and more rapid collection and processing of specimens.

These factors should be considered together with local costs when choosing the product to use in clinical practice