Nasopharyngeal Wash Versus Swab Specimens for Culture of Nontypeable Haemophilus influenzae and Other Respiratory Bacterial Pathogens

To the Editor—We read with interest the recent article by Winokur et al, in which they developed a safe experimental human model of nontypeable Haemophilus influenzae (NTHi) nasopharyngeal colonization [1]. In their study, both nasopharyngeal wash specimens and nasopharyngeal swab specimens were collected to culture NTHi. Colonization was detected in nasopharyngeal wash samples from 9 subjects (60%) and in nasopharyngeal swab samples from 6 subjects (40%).

Our group has been studying nasopharyngeal colonization of infants and children (age range, 6–30 months) for the past 7 years with the support of the National Institutes of Health’s National Institute on Deafness and Other Communication Disorders. We obtained nasopharyngeal wash, nasopharyngeal swab, and oropharyngeal swab samples during >1500 visits and found that, consistent with results of the study by Winokur et al [1], NTHi, Streptococcus pneumoniae, and Moraxella catarrhalis were more frequently isolated from cultures of nasopharyngeal wash specimens (59%) than from cultures of nasopharyngeal swab samples (48%) [2–4]. Moreover, we found no cases in which culture of nasopharyngeal swab specimens yielded the 3 target bacteria when results of nasopharyngeal wash culture were negative. A previous study by Greenberg et al [5] showed that S. pneumoniae is carried mainly in the nasopharyngeal region, whereas NTHi is carried equally in the nasopharyngeal and oropharyngeal
regions. Therefore, we collected and cultured nasopharyngeal wash, nasopharyngeal swab, and oropharyngeal swab samples because omitting cultures of the oropharyngeal swab samples might underestimate colonization. However, in our studies we found that, of 1512 throat swab samples, the detection rate of NTHi, S. pneumoniae, and M. catarrhalis was only 3.6% and that, among those isolates, 78% were also present in nasopharyngeal wash samples. Thus, had we omitted the labor and cost to process 1522 oropharyngeal swab samples, we would have missed detecting 0.8% of the above 3 potential respiratory bacterial pathogens. The higher rate of detection of NTHi by Greenberg et al may have included presumptive NTHi that were actually Haemophilus haemolyticus [6]. On the basis of our observations, we conclude that culture of nasopharyngeal wash specimens is both sufficient and highly cost-effective as a method of culture for NTHi, S. pneumoniae, and M. catarrhalis, and we have now adopted that practice in our ongoing prospective work.

Note

Potential conflicts of interest. All authors: No reported conflicts.

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References